



**Enabling End Users to see Real Time Price
Signals and Manage their Own Electricity Costs
via the
PJM Demand Side Response Program**

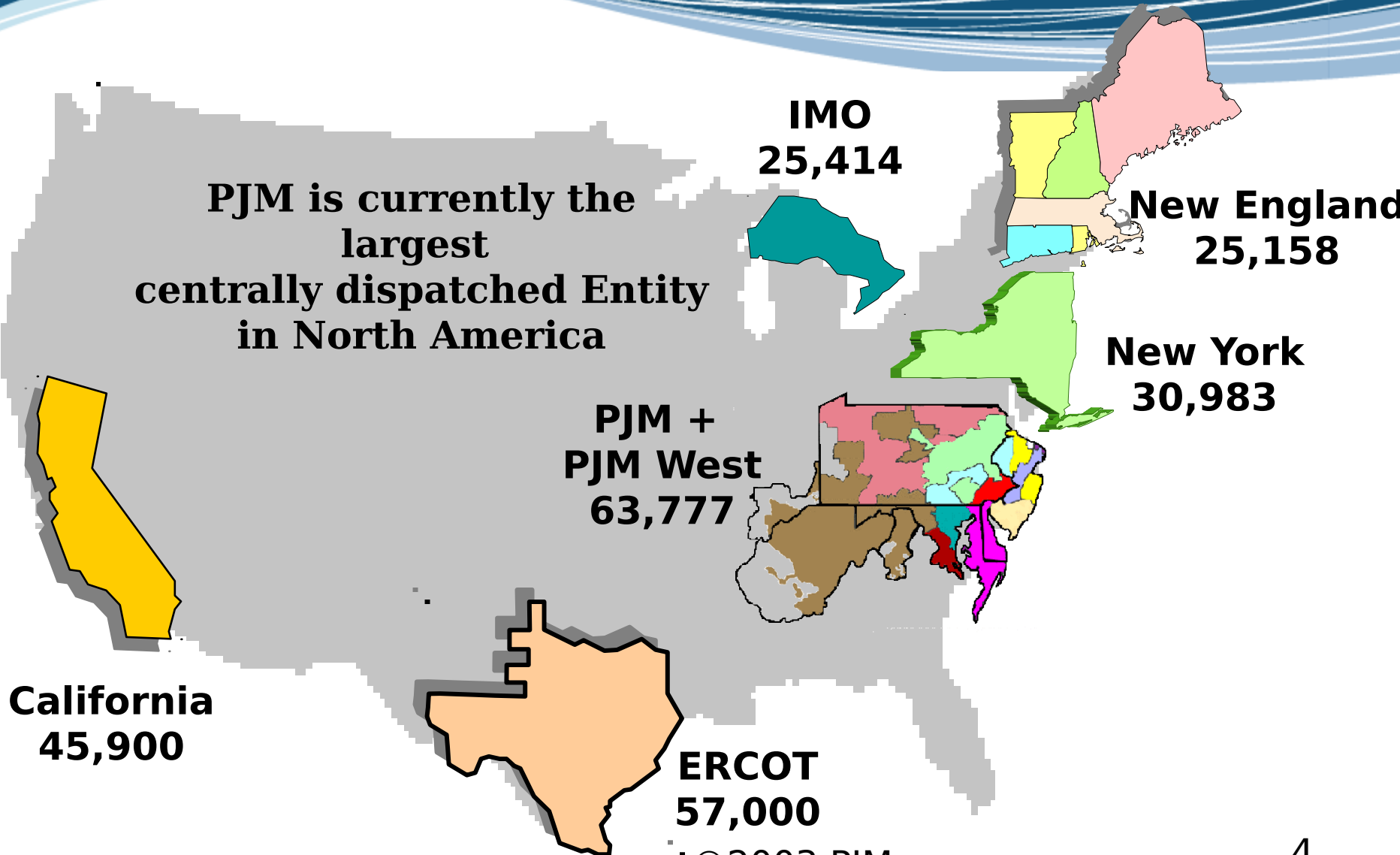
***Defense Energy Support Center
Worldwide Energy Conference
September 29, 2004***

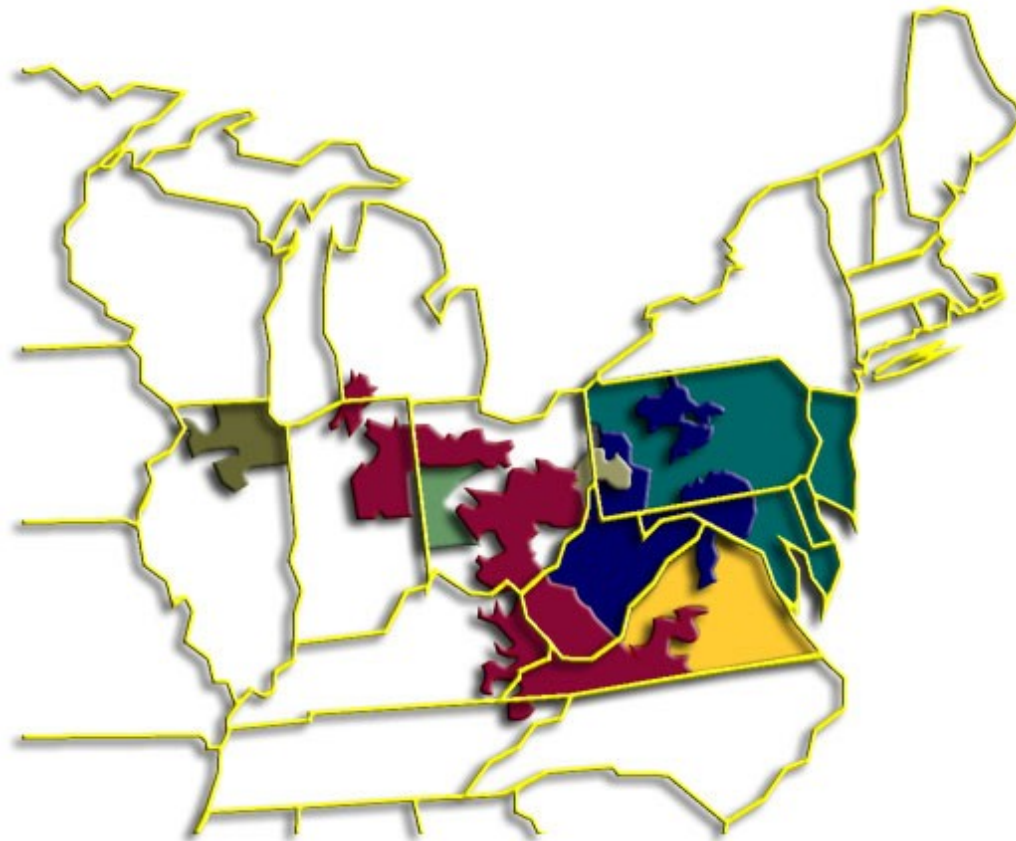
Joe Polidoro, Sr. Engineer
PJM Interconnection, LLC
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Market Overview

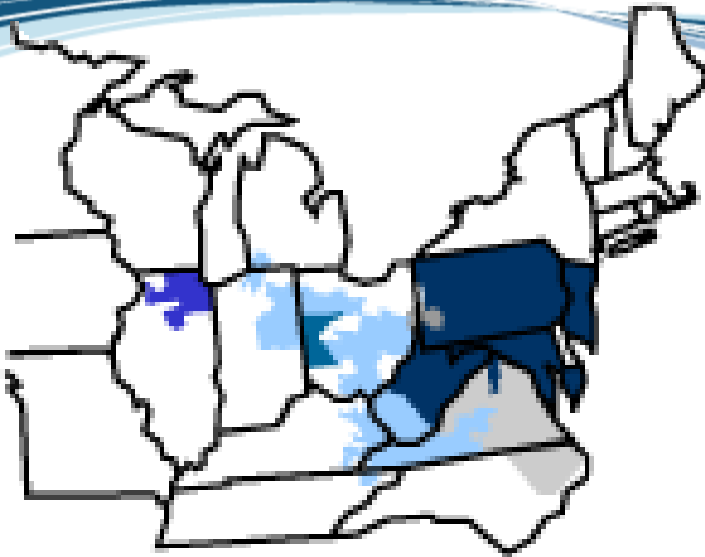
- Maintain the safety, adequacy, reliability and security of the power system
- Create and operate a robust, competitive, and non-discriminatory wholesale electric power market







-  PJM
-  PJM Western Region
-  Duquesne - Jan '05
-  AEP - Oct '04
-  Dayton Power & Light - Oct '04
-  ComEd - May '04
-  Dominion Power - Nov '04



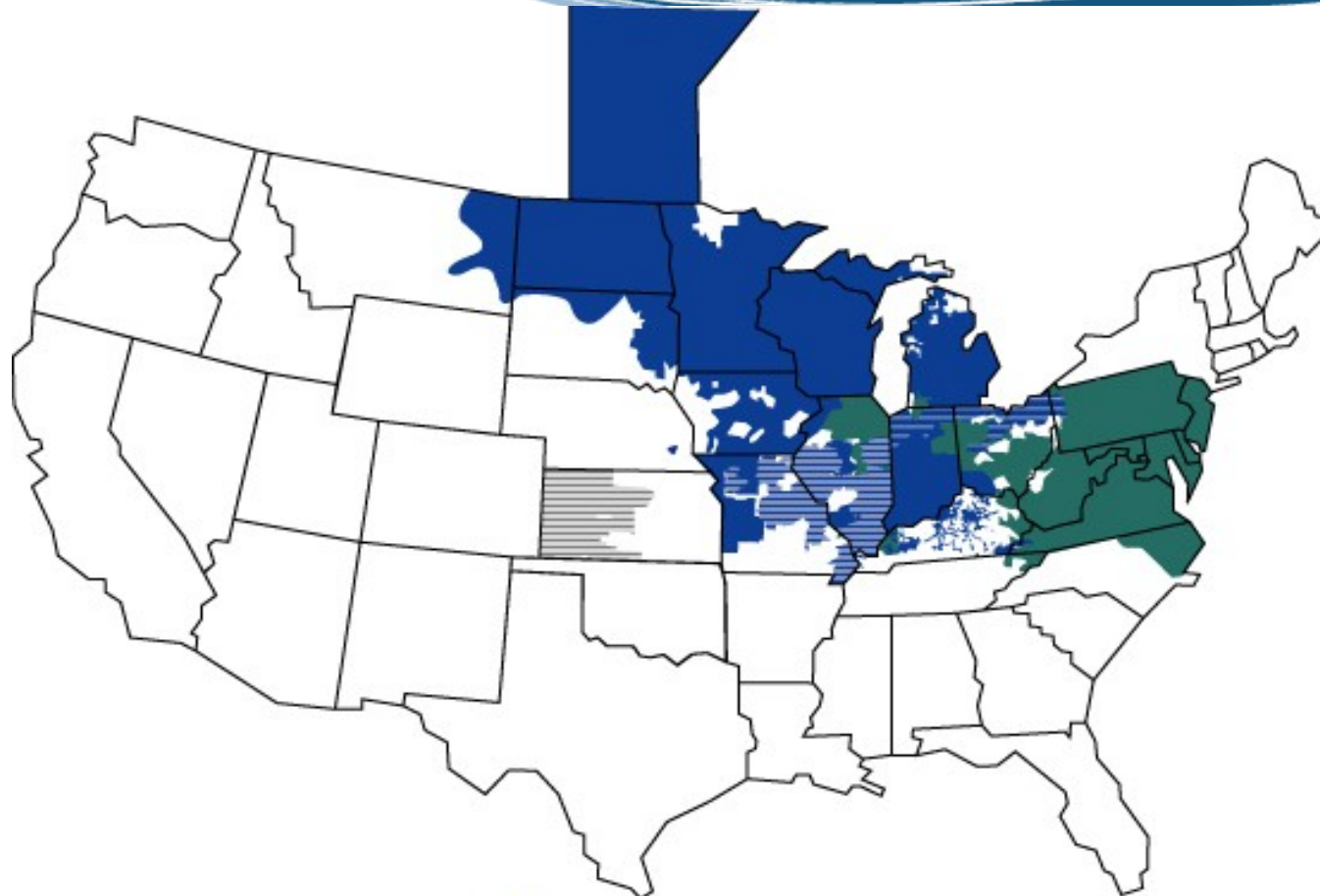
PJM - Full Service RTO

- Control Area Operator
- Transmission Provider
- Market Administrator
- Regional Transmission Plan
- NERC Reliability Coordinator

PJM RTO (Post-Integrations)

Generating Units	1,166
Generation Capacity	165,132 MW
Peak Load	134,500 MW
Annual Energy	678,500 GWh
Transmission Miles	55,703
Area (Square Miles)	186,800

Customers	21.5 Million
Population Served	35 Million
States (+ D.C.)	12 states + D.C.



- Midwest ISO, Current Operations
- GridAmerica (FirstEnergy and NIPSCO)
- Ameren (Operations in GridAmerica pending state approval)
- Services Pending
- PJM Service Territory

Key benefits to wholesale customers.

- PJM spot market construct
 - Greater access to additional sources of energy and capacity - diversity
 - Full price transparency
 - Improves trading and negotiating options – liquidity
- Enhanced Reliability – increased access and efficient use of transmission system
- Market based re-dispatch to manage congestion
- Reliability managed by PJM as an independent organization
- Elimination of pancaked rates and reduction of “seams”

Key benefits to wholesale customers.

- Coordinated calculation of Available Transfer Capability (ATC) ensures maximum transmission system utilization in a reliable manner
- Independent market monitor
- Elimination of rate pancaking for transmission customers;
 - Reduces costs
 - Increases import options
- Independent regional planning process

Market Integration Timeline

5/04 6/04 7/04 8/04 9/04 10/04 11/04 1/05

★ ComEd Integration Complete

★ FERC Filings (if required) - AEP/Dayton/Dominion

Integration Testing

★ ——— ★

FTR Selection Process

★ ——— ★

Participant Data Integration

★ ——— ★

Market Trials

★ ——— ★

AEP / Dayton Integration Complete

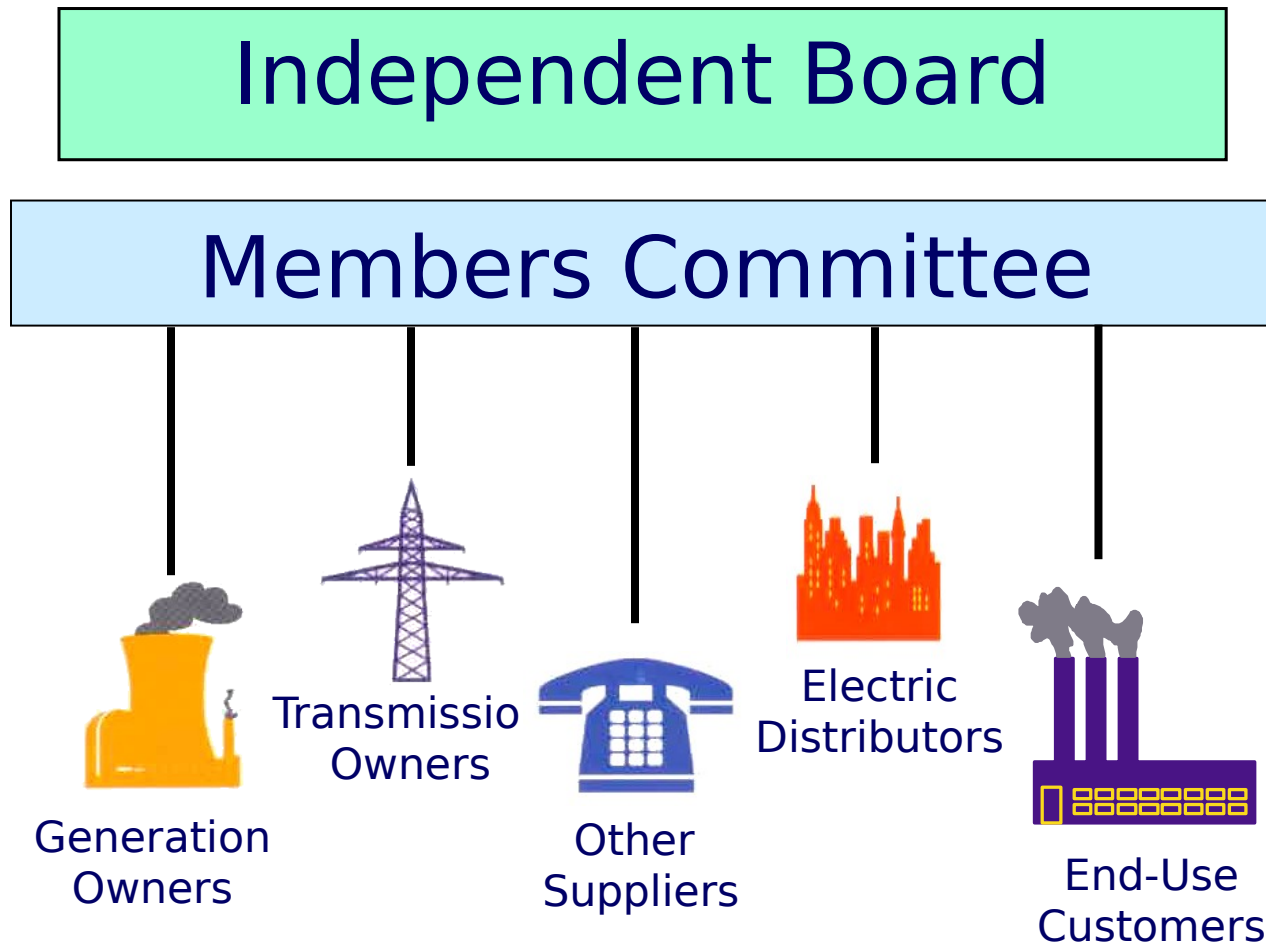
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Dominion Integration Complete





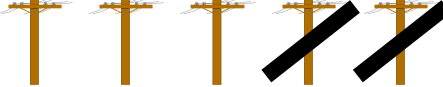

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Duquesne Integration Complete

★



Members Committee Voting Protocol

Generation Owners		5/7	0.71
Transmission Owners		2/8	0.25
Other Supplier		21/23	0.91
End Use Customers		5/5	1.00
Electric Distributors		3/5	0.60
Required to pass = 0.667 Number of Sectors = 5 Required Affirmative = $5 \times 0.667 = 3.335$			3.47 

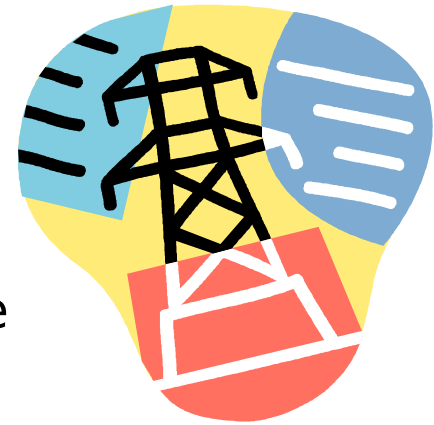
A series of flowing, wavy blue lines that sweep across the top of the slide, creating a sense of movement and energy.

PJM Demand Side Response Programs



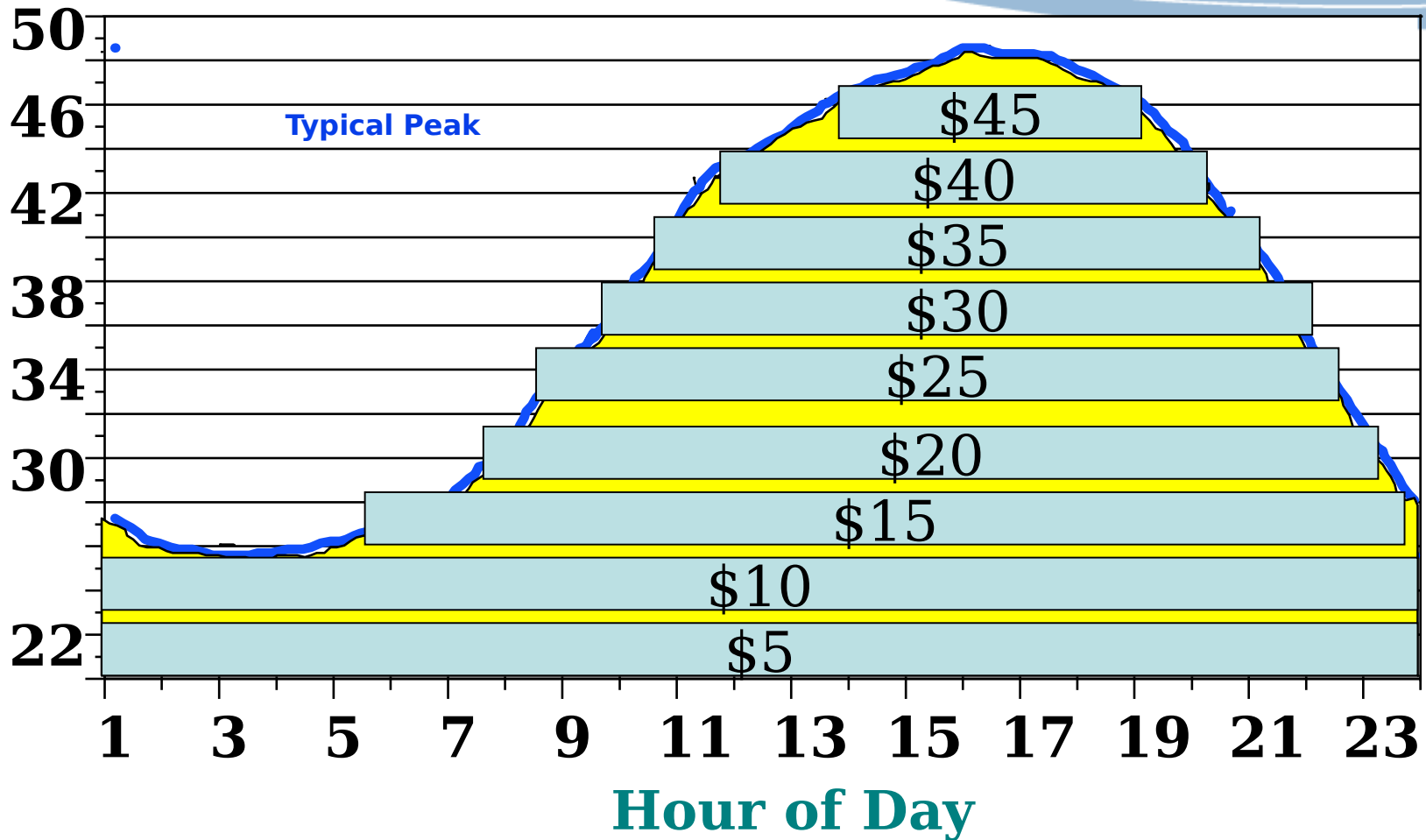
How Demand Response Interacts with the Market?

- A working demand response program puts downward pressure on price.
- It is an alternative to generating more electricity.
- When wholesale prices are high, Demand response can stabilize prices by reducing demand. When electricity supplies are short, demand response reduces stress on the grid.
- 4,600+ Large Industrial and Commercial participants.
- 45,000+ small commercial and residential end users in the program.



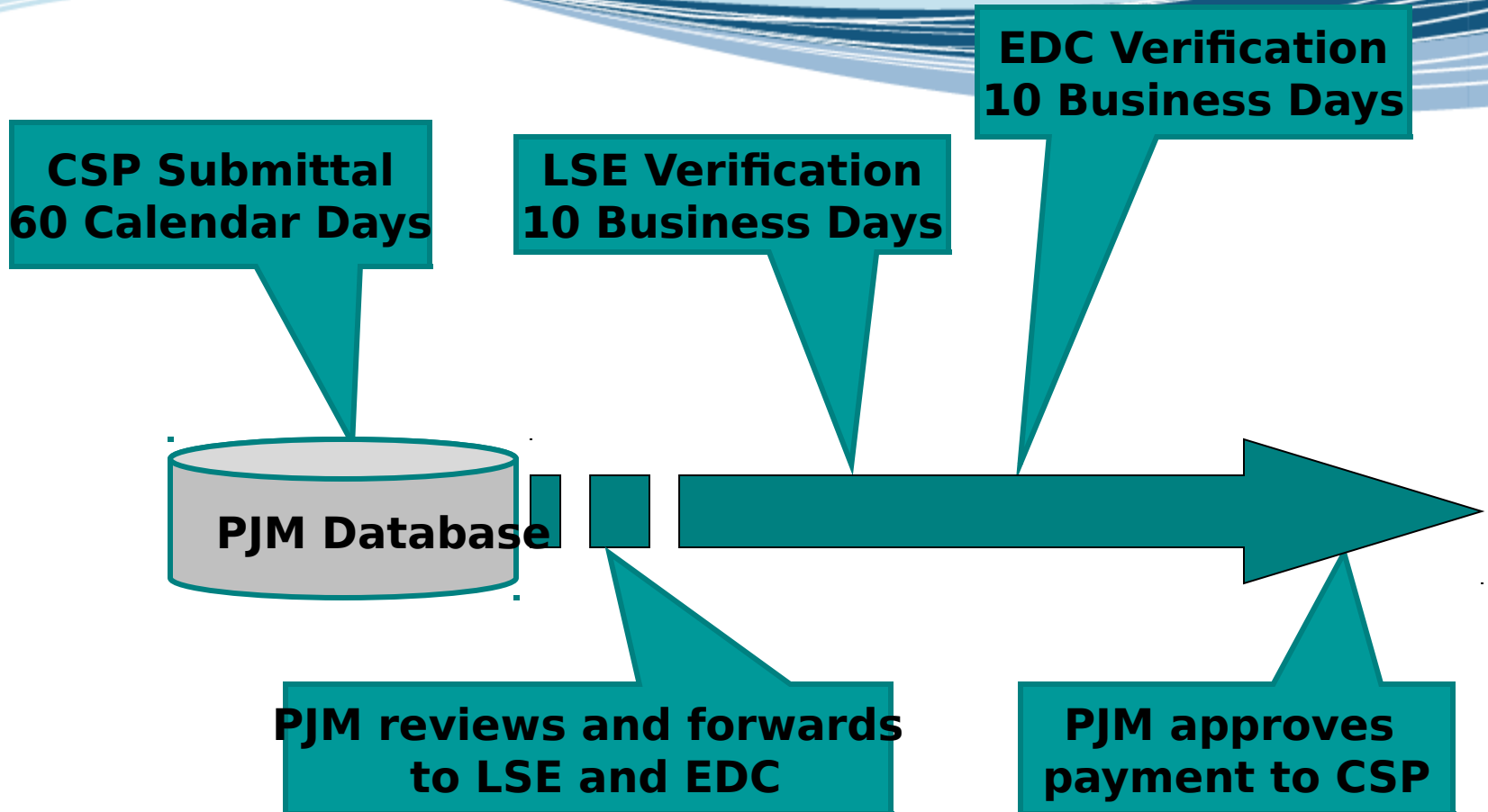
A series of horizontal, wavy blue lines that sweep across the top of the slide, creating a sense of motion and depth.

How is a CSP paid for shifting or reducing usage



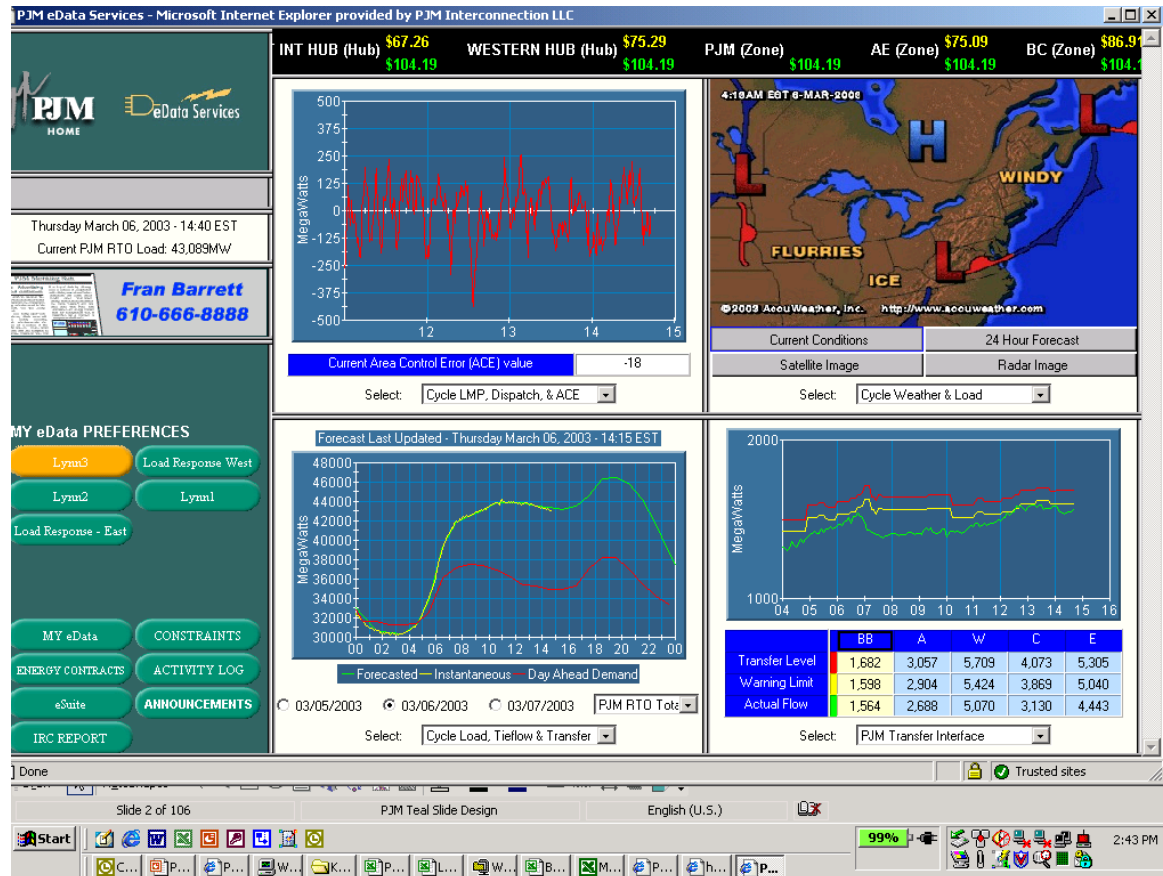
What Program Is Right For Me?

Program Name		Emergency	Economic-Real-Time
Frequency	I can respond frequently. Notify me when prices are high	//	//
	I can respond infrequently. Only notify me when the lights are in danger of going out	//	
Risk	I want a 100% voluntary program with no risk and no penalties	//	//
Implementation	I want to use my emergency generators and I have the proper permits.	//	//
	I will only reduce load if I'm paid a minimum of \$0.50/kW	//	(Request to be dispatched at \$0.50/kW or higher)
Registration	Industrial and Large Commercial (> 100 kW)	//	//
	Residential or Small Commercial Pilot Program (< 100 kW)	//	//





Where to obtain the current pricing information?

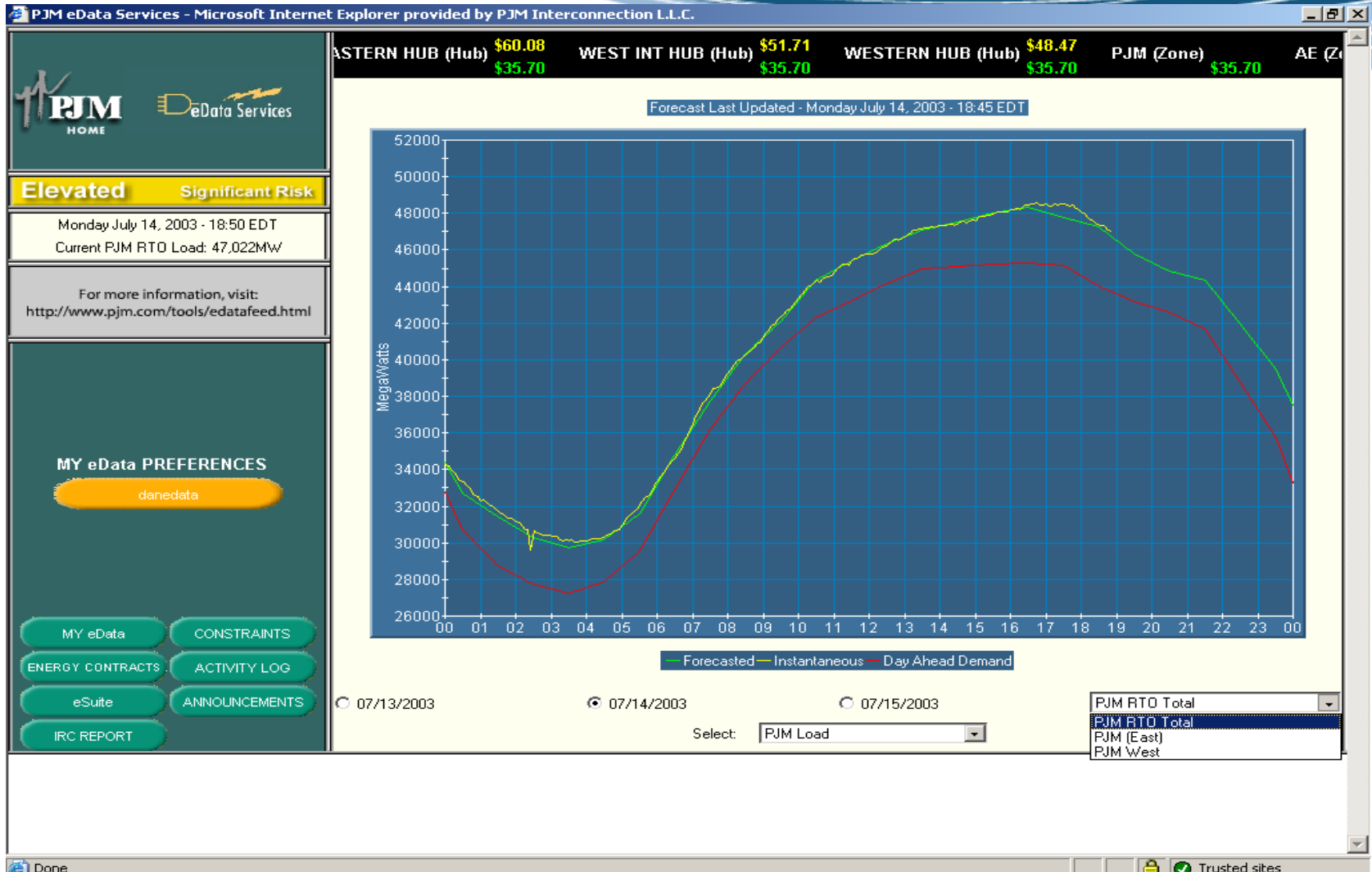


eData

Non-PJM members should register under the company name "Other"


<https://esuite.pjm.com/mui/index.htm>

IT'S FREE!

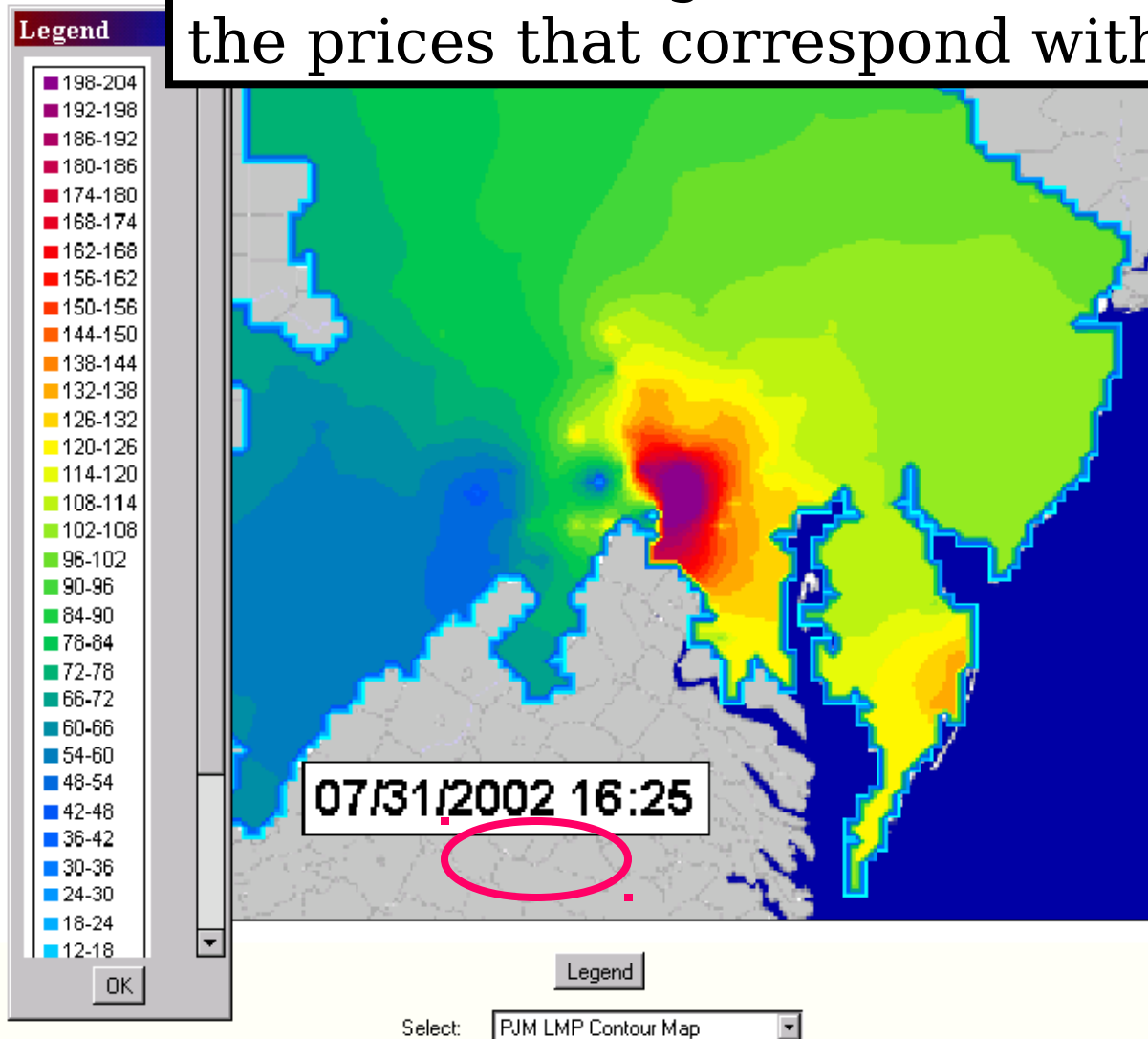


HUB (Hub)	\$27.01	Current Load	38,370MW	Min Dispatch	\$48.24	Max Dispatch	\$74.80	Area Control Error	99M
	\$54.09								

- Ticker can display Day-Ahead (top-yellow) and Real-Time prices (bottom-green), load, min and max dispatch rates and Ace.
- Double click on the ticker to spawn this mini-ticker outside of the main eData window.

	PJM eData Services	Speed	<div><div>+</div><div>-</div></div>	Direction	<div><div><-</div><div>-></div></div>	TRANSFER INTERFACE	TIE FLOW				
	WESTERN HUB (Hub)	<div><div>\$27.01</div><div>\$54.09</div></div>	Current Load	38,370MW	LMP data current as of Tue 04-Sep-01 19:15 EDT			Day Ahead	AE (Zone)	<div><div>\$36.73</div><div>\$56.68</div></div>	BC
								Real Time			
	MY eData	ENERGY CONTRACTS	CONSTRAINTS	ANNOUNCEMENTS	eSuite	ACTIVITY LOG					

Click on the “legend” and it will show you the prices that correspond with the colors.



1. What is the cost to join?
2. Can I participate in multiple programs at the same time?
3. Can I enroll in the program with a party other than the company that I am purchasing electricity from?
4. Will my utility get mad if I enroll in the program?
5. Can I become my own CSP?
6. What are the metering requirements?
7. Are there any hidden costs?

The Demand Side Working Group's mission is to identify and promote opportunities for demand-side resources to participate in the PJM markets, and to recommend adoption of Protocols and Protocols revisions that foster optimum load participation in all markets.

Why Is Your Participation Important?

- What is done in 2004 will likely fix your options for the next few years
- There are many Protocols issues that will be addressed by DSRWG this year that will affect whether your load is suitable for other opportunities
- If you have a stake, you cannot afford not to play
- The only thing you need do to participate is attend the DSWG meetings

1. Enroll in the program (contact a CSP or obtain PJM membership)
2. Select a program (Emergency or Economic)
3. Obtain a free eData account
4. Dial in or attend the monthly working group meetings.
5. Send all requests to LoadResponse@pjm.com
6. Detailed information about PJM's demand-response program is available at PJM's Web site: www.pjm.com > Services > Demand Response Program.